

Appl. No. 10/810,385
Reply to Office Action of September 1, 2006

Amendments to the Drawings:

The attached replacement sheets of drawings includes changes to original FIGS. 1-3, 5 and 8. The sheets, which includes FIGS. 1-3, 5A-5B and 8A-8B, replace the original sheets including FIGS. 1-3, 5 and 8, respectively.

Attachment: Three Replacement Sheets

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REMARKS

Claims 1-23 are pending in this application. Claims 1, 4, 6, 8, 9, 11, 14-18 and 20-23 are amended. Reconsideration of this application is respectfully requested.

Amendments to the Specification

On pages 3 and 4 of the Action the specification was objected to for containing terms that are not clearly concise and exact. Responsive to the objections, the specification has been reviewed and amended as follows.

The paragraph [0021] has been amended to replace "it" with "the photography mask" in response to the Examiner's suggestion.

The paragraph [0004] has been amended to replace "device becomes" with "devices become" in response to the Examiner's request.

The paragraphs [0013], [0016] and [0031] have been amended in consistency with the amendments made to FIGS. 5 and 8, respectively.

The paragraph [0029] has been amended to correct the formula set forth therein.

The specification now complies with the requirements of 35 U.S.C. §112, first paragraph and withdrawal of the objections to the specification is respectfully requested.

Amendments to the Drawings

FIGS. 1-3 have been amended to add legend "PRIOR ART" in response to the Examiner's request.

FIG. 5 has been amended to include FIGS. 5A and 5B corresponding to the aerial intensity and the phase change, respectively, of a defect. A unit "um" has been added to the horizontal coordinate "distance." Further, FIGS. 5A and 5B have labeled with legend "PRIOR ART" in response to the Examiner's request.

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FIG. 8 has been amended to include FIGS. 8A and 8B corresponding to the aerial intensity and the phase change, respectively, of a defect with an exemplary grating area. A unit "um" has been added to the horizontal coordinate "distance."

The Action objects to the amended Claims 5A-5B and 8A-8B, contending that the aerial intensity and near field phase graphs have different horizontal distance coordinates that do not fully correspond with each other in the same figure. The aerial intensity and near field phase graphs have now been labeled with FIGS 5A and 5B, respectively, as different figures. The graphs of FIGS. 5A and 5B combine to clearly illustrate aspects of the prior art. Applicants are not aware any of any requirement that the horizontal coordinates of FIGS 5A and 5B have the same scale. FIGS. 5A and 5B show different computed characteristics of a defect which are not compared to each other in the disclosure. The scale of the horizontal coordinate of FIG. 5A therefore need not correspond to that of FIG. 5B. For the reasons set forth above in connection with FIGS. 5A and 5B, there is also no requirement to amend the graphs of FIGS. 8A and 8B so that the horizontal coordinates of FIGS. 8A and 8B have the same scale.

Based on the foregoing, withdrawal of the objections to the drawings is respectfully requested.

Claim Objections

On pages 4 and 5 of the Action Claims 1-23 were objected to for informalities. Responsive to the objections, the claims have been amended as follows.

Claims 1, 11 and 20 have been amended to replace "undesired image printing" with "an undesired image printing problem" in response to the Examiner's request.

Claims 6, 16 and 22 have been amended to delete ";" between "pitch" and "and" in consistency with the features recited in Claims 7, 17 and 23.

Withdrawal of the claim objections is respectfully requested.

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Claim rejections under 35 U.S.C. § 112, second paragraph

On pages 5-7 of the Action Claims 1-23 were rejected under 35 U.S.C. §112, second paragraph as being indefinite. Responsive to the rejections, the claims have been amended as follows.

Claims 1, 11 and 20 have been amended to replace "the grating repair specification" with "the one or more grating repair specification" in response to the Examiner's request.

Claims 1, 4, 11, 14, 20 and 21 have been amended to replace "the artificial grating areas" with "the one or more artificial grating areas" in response to the Examiner's request.

Claims 6, 8, 16, 18 and 22 have been amended to replace "the artificial grating area" with "the one or more artificial grating areas" and "the grating area" with "the one or more artificial grating areas" in response to the Examiner's request.

Claim 4 has been amended to replace "one or more grating repair specifications" with "the one or more grating repair specifications" in response to the Examiner's request.

Withdrawal of the claim rejections under 112, second paragraph is respectfully request.

Amendments of Claims 7, 9, 17, 19 and 23

Claims 7 and 17 have been amended in consistency with the feature recited in Claims 6 and 16, respectively.

Claims 9, 19 and 23 have been amended to correct grammatical errors.

Claims Rejections under 35 U.S.C. §103 (a)

The Action rejects Claims 1-23 under 35 U.S.C. §103(a) , contending that the claims are unpatentable over U.S. Patent Publication No. 2004/0191642 to Lin et al. ("Lin") in view of either U.S. Patent No. 5,282,140 to Tazawa et al. ("Tazawa"), U.S. Patent Publication No. 2002/0058188 to Iwasaki et al. ("Iwasaki") or U.S. Patent Publication No. 2003/0207184 to Smith ("Smith") and further in view of U.S. Patent Publication No. 2004/0234869 to Tejnil

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(“Tejnil”) and The Optical Properties of Artificial Media Structured at a Subwavelength Scale of Lalanne et al. (“Lalanne”).

Common ownership

The patent application corresponding to the cited reference, Lin, and the present application were entirely owned by, or subject to an obligation to assign all rights to, the Assignee of the present application at the time the claimed invention was made. Each of the Lin reference and the present application is owned by Taiwan Semiconductor Manufacturing Company Ltd. The assignment of the Lin reference was recorded at Reel/Frame 013921/0639 and a copy of the Patent Assignment Abstract of Title as appeared on the USPTO website (www.uspto.gov) on November 17, 2006 is attached hereto. The Lin reference is therefore not available to be cited in combination with any other reference in any office action in the present application for any rejections under § 102(e)/103. Applicants have enclosed, with this response, a copy of the assignment document for the present application, for the Examiner’s convenience.

Since Lin is not qualified as a prior art under § 102(e)/103, withdrawal of the rejections to Claims 1-23 is respectfully requested. Therefore, Claims 1-23 are allowable for at least the reason set forth above.

In view of the foregoing amendments and arguments, reconsideration and withdrawal of the rejections of Claims 1-23 are respectfully requested.

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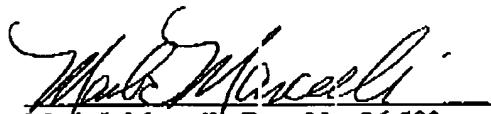
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Conclusion

In view of the foregoing amendments and remarks, Applicants submit that this application is in condition for allowance. Early notification to that effect is respectfully requested.

The Commissioner for Patents is hereby authorized to charge any additional fees or credit any excess payment that may be associated with this communication to deposit account 04-1679.

Respectfully submitted,



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Dated: November 30, 2006

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Attachments: 1) Patent Assignment Abstract of Title for Lin reference US20040191642
2) Assignment document for the present application
3) Replacement sheets of drawings



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Patent Assignment Abstract of Title

NOTE: Results display only for issued patents and published applications.
For pending or abandoned applications please consult USPTO staff.

Total Assignments: 1Patent #: 6982134 Issue Dt: 01/03/2006 Application #: 10402196 Filing Dt: 03/28/2003Publication #: US20040191642 Pub Dt: 09/30/2004

Inventor: Cheng-Ming Lin

Title: MULTIPLE STEPPED APERTURE REPAIR OF TRANSPARENT PHOTOMASK SUBSTRATES

Assignment: 1Reel/Frame: 013921/0639 Recorded: 03/28/2003

Pages: 3

Conveyance: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).

Assignor: LIN, CHENG-MING Exec Dt: 02/12/2003Assignee: TAIWAN SEMICONDUCTOR MANUFACTURING CO. LTD.

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EXPRESS MAIL LABEL NO.: EV 398572768 US

ATTORNEY DOCKET NO. N1085-00222
[TSMC2003-0413]

ASSIGNMENT AND AGREEMENT

For value received, we, Ming Lu, King-chang Shu, Bin-chang Chang, and Li-wei Kung hereby sell, assign and transfer to Taiwan Semiconductor Manufacturing Co., Ltd., with its principal place of business located at No. 8, Li-Hsin Road 6, Science-Based Industrial Park, Hsin-Chu, Taiwan 300-77, Republic of China, and its successors, assigns and legal representatives, the entire right, title and interest, for the United States of America, in and to certain inventions related to **REPAIR OF PHOTOLITHOGRAPHY MASKS BY SUB-WAVELENGTH ARTIFICIAL GRATING TECHNOLOGY** described in an application for Letters Patent of the United States filed on March 26, 2004 bearing the Application Number 10/810,385 and all the rights and privileges in said application and under any and all Letters Patent and any divisions, continuations, continuations-in-part, reexamination certificates, reissues, and extensions thereof that may be granted in the United States for said inventions; and we also concurrently hereby sell, assign and transfer to Taiwan Semiconductor Manufacturing Co., Ltd. the entire right, title and interest in and to said inventions for all countries foreign to the United States, including all rights of priority arising from the application aforesaid, and all the rights and privileges under any and all forms of protection, including Letters Patent, that may be granted in said countries foreign to the United States for said inventions.

We authorize Taiwan Semiconductor Manufacturing Co., Ltd. to make application for such protection in its own name and maintain such protection in any and all countries foreign to the United States, and to invoke and claim for any application for patent or other form of protection for said inventions, without further authorization from us, any and all benefits, including the right of priority provided by any and all treaties, conventions, or agreements.

We hereby consent that a copy of this assignment shall be deemed a full legal and formal equivalent of any document which may be required in any country in proof of the right of Taiwan Semiconductor Manufacturing Co., Ltd. to apply for patent or other form of protection for said inventions and to claim the aforesaid benefit of the right of priority.

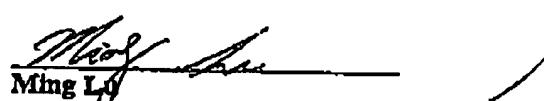
We request that any and all patents for said inventions be issued to Taiwan Semiconductor Manufacturing Co., Ltd. in the United States and in all countries foreign to the United States, or to such nominees as Taiwan Semiconductor Manufacturing Co., Ltd. may designate.

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ATTORNEY DOCKET NO. N1085-00222
[TSMC2003-0413]

We agree that, when requested, we shall, without charge to Taiwan Semiconductor Manufacturing Co., Ltd. but at its expense, sign all papers, and do all acts which may be necessary, desirable or convenient in connection with said applications, patents, or other forms of protection.

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